

National Aeronautics and Space Administration

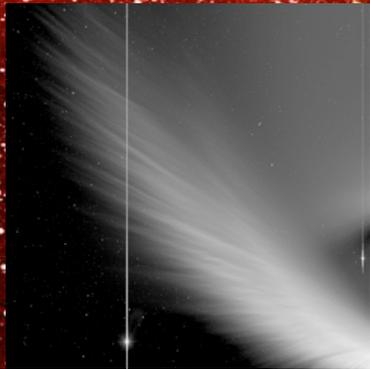
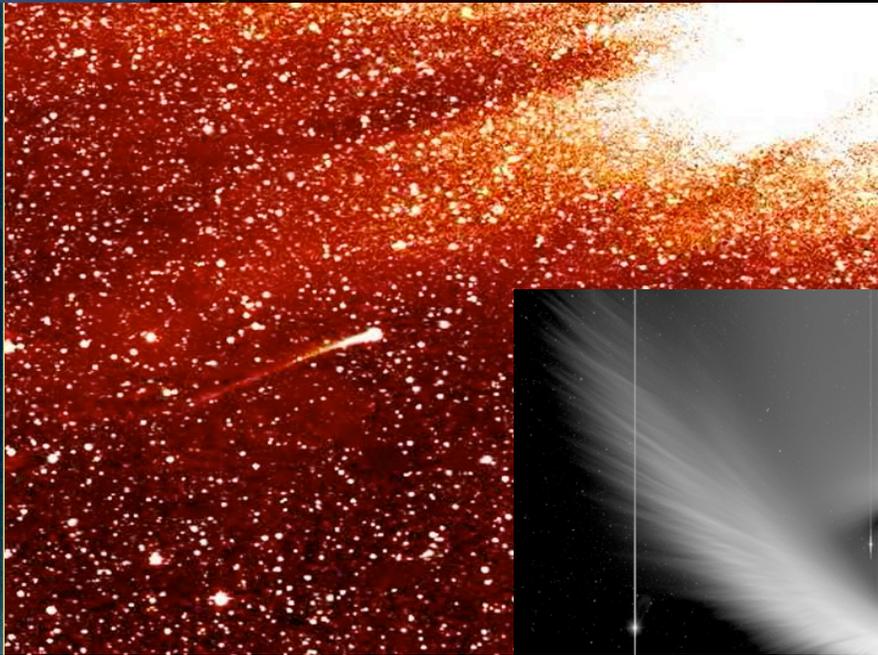
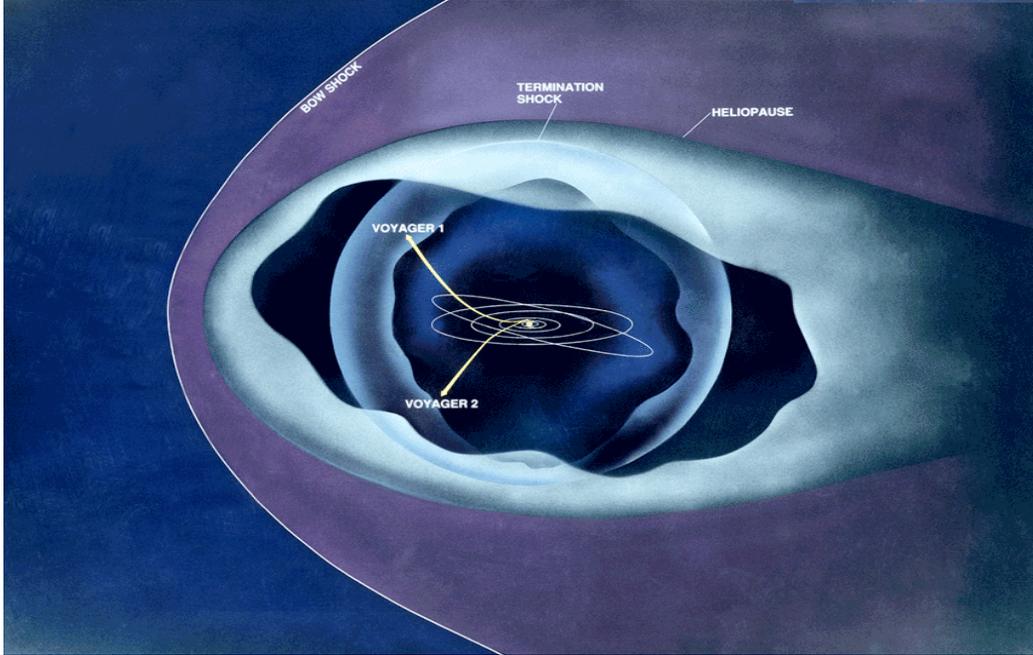
A composite image featuring a cosmic scene with a bright yellow sun, a blue and white planet, and a purple nebula. In the foreground, there are several ball-and-stick molecular models with atoms in red, yellow, and purple. The scene is framed by black, wavy, ribbon-like borders.

The Partnership... or the future of NASA Science and Exploration

Todd May
Special Asst to the Director, MSFC

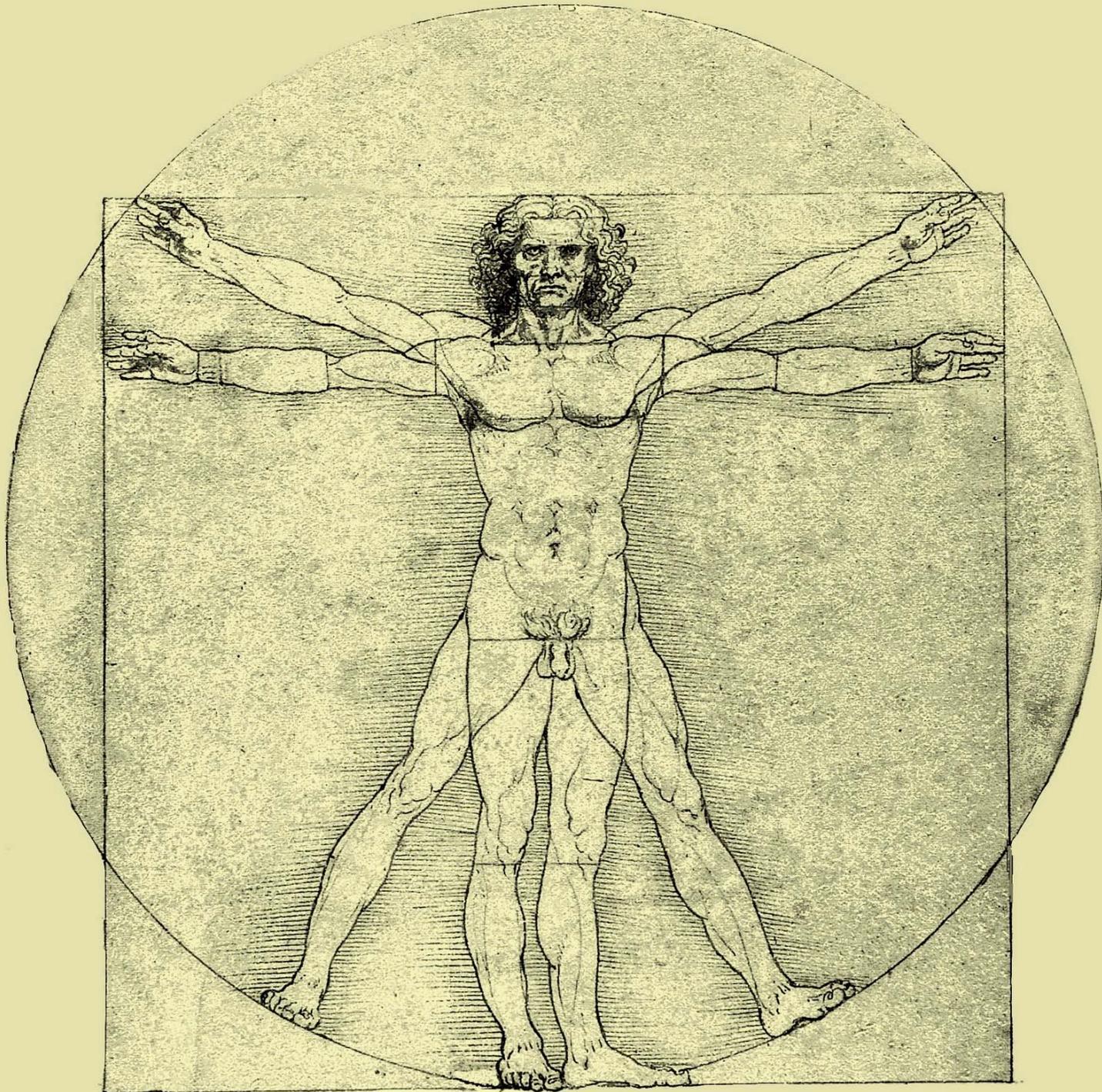


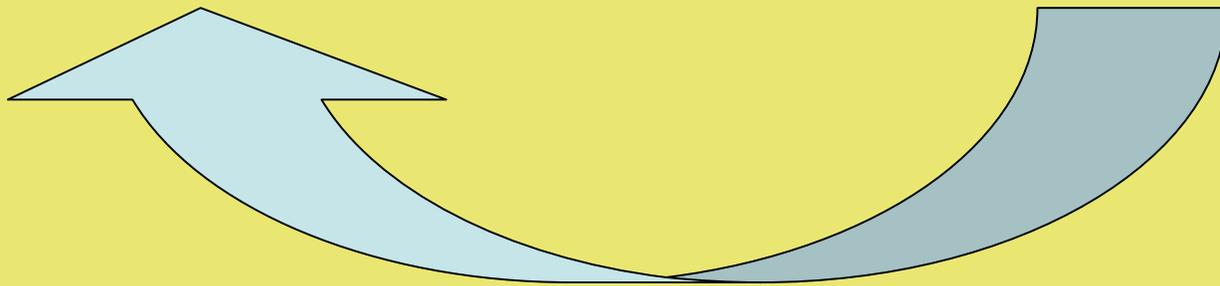
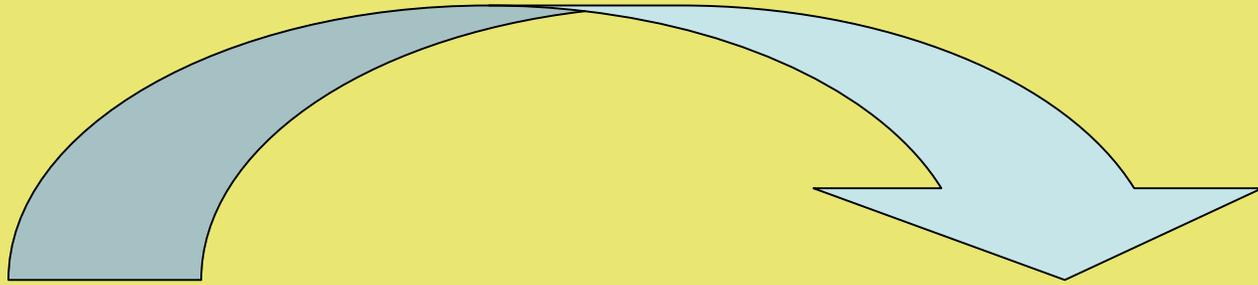












Exploration ≠ Science

Exploration is going into the unknown, probing the frontier, looking over the next hill.

It has structure, but is not directed

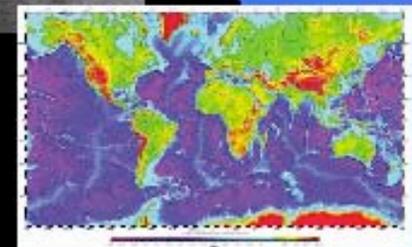
Discoveries sometimes build on each other, sometimes are isolated

Science is the process by which we explain nature

It has a well-defined, directed structure (observation, hypothesis, experiment, verification)

Scientific knowledge is cumulative and self-correcting

Both are dynamic, not static. Science always follows exploration



Exploration precedes and enables science

*Borrowed from Spudis "Why the Moon"

Exploration and Science

"Exploration without science is tourism" – A NASA official

Exploration is **broader and richer** than science

Security and asset protection

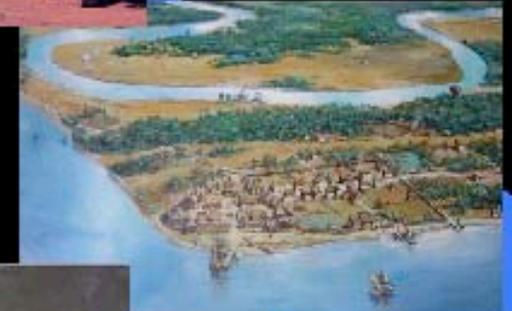
Wealth creation

Settlement and infrastructure development

Exploration **enables** science

Access to remote locales and exotic environments

Exploratory infrastructure permits scientific investigation



*Borrowed from Spudis "Why the Moon"

Why Human Spaceflight?

The emotional dimension

Inspiration

People in space are our surrogates; vicarious exploration

Cathedral building; scale is too big for one generation

A human window onto the universe

Drama

Marked upsurge of public interest during crises (e.g., Apollo 13)

Emotion and curiosity (about past and future)

A modern gladiatorial contest, without the gore

Spectacle

A reincarnation of our pioneer/frontier origins

Encourages a communal perspective

Belief in something bigger than ourselves



*Borrowed from Spudis "Why the Moon"





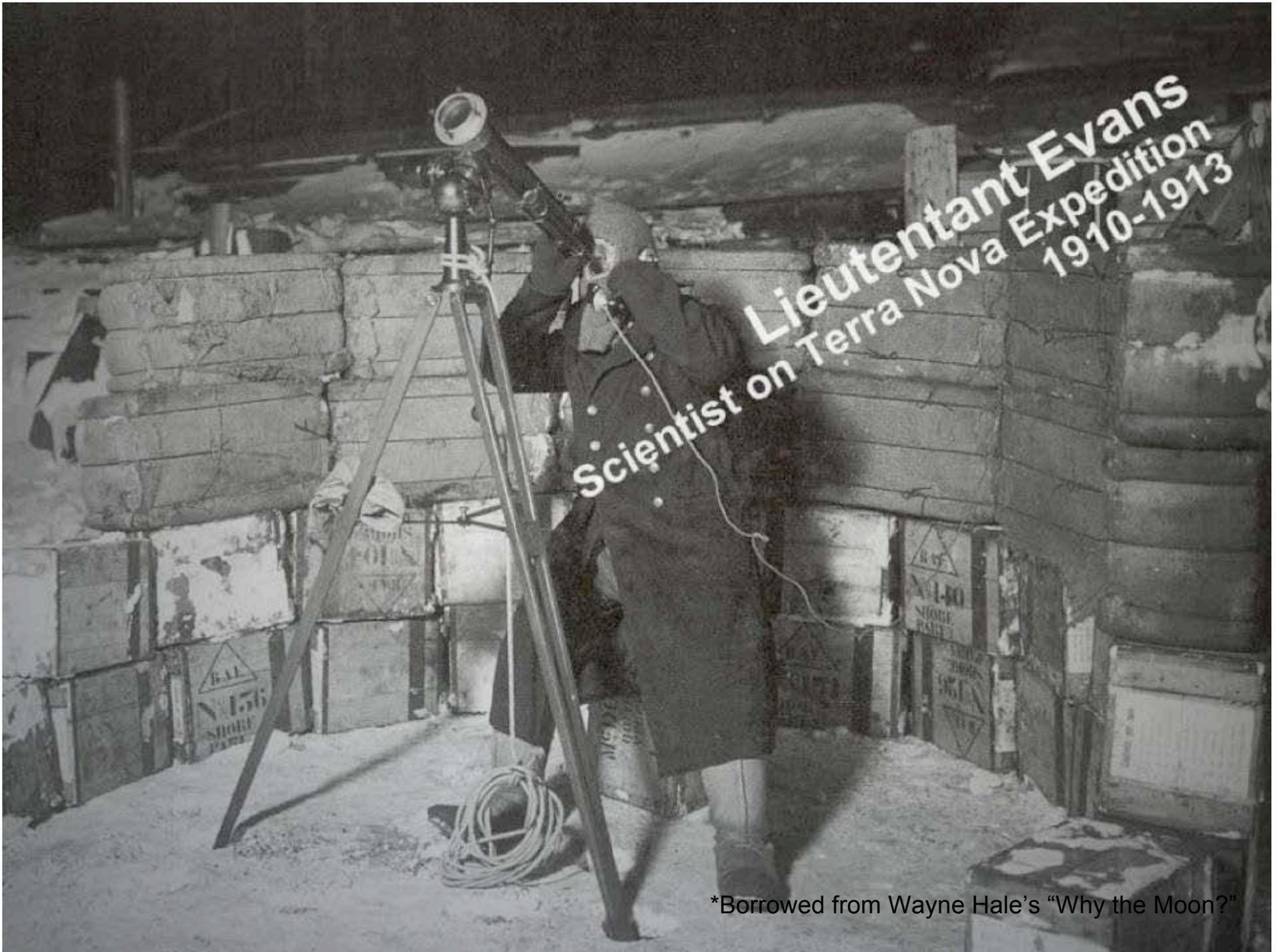
*Borrowed from Wayne Hale's "Why the Moon?"

These boots were most likely those worn by James Mann Wordie during Shackleton's expedition.

Wordie was a geologist aboard *Endurance*.



*Borrowed from Wayne Hale's "Why the Moon?"

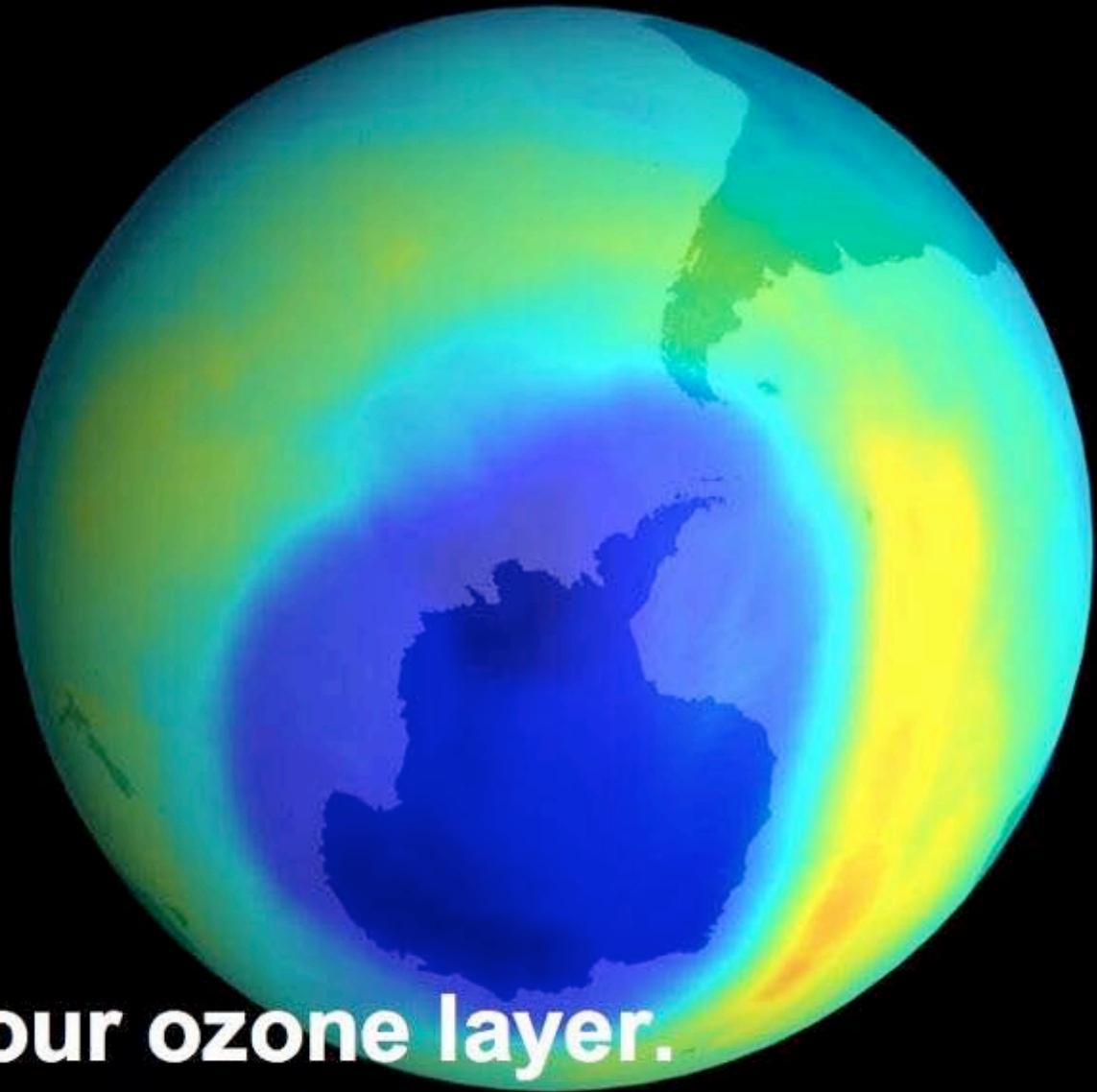


Lieutenant Evans
Scientist on Terra Nova Expedition
1910-1913

*Borrowed from Wayne Hale's "Why the Moon?"

**In fact, if it wasn't for the science
done on these expeditions, we may
never have known about...**

*Borrowed from Wayne Hale's "Why the Moon?"



the hole in our ozone layer.

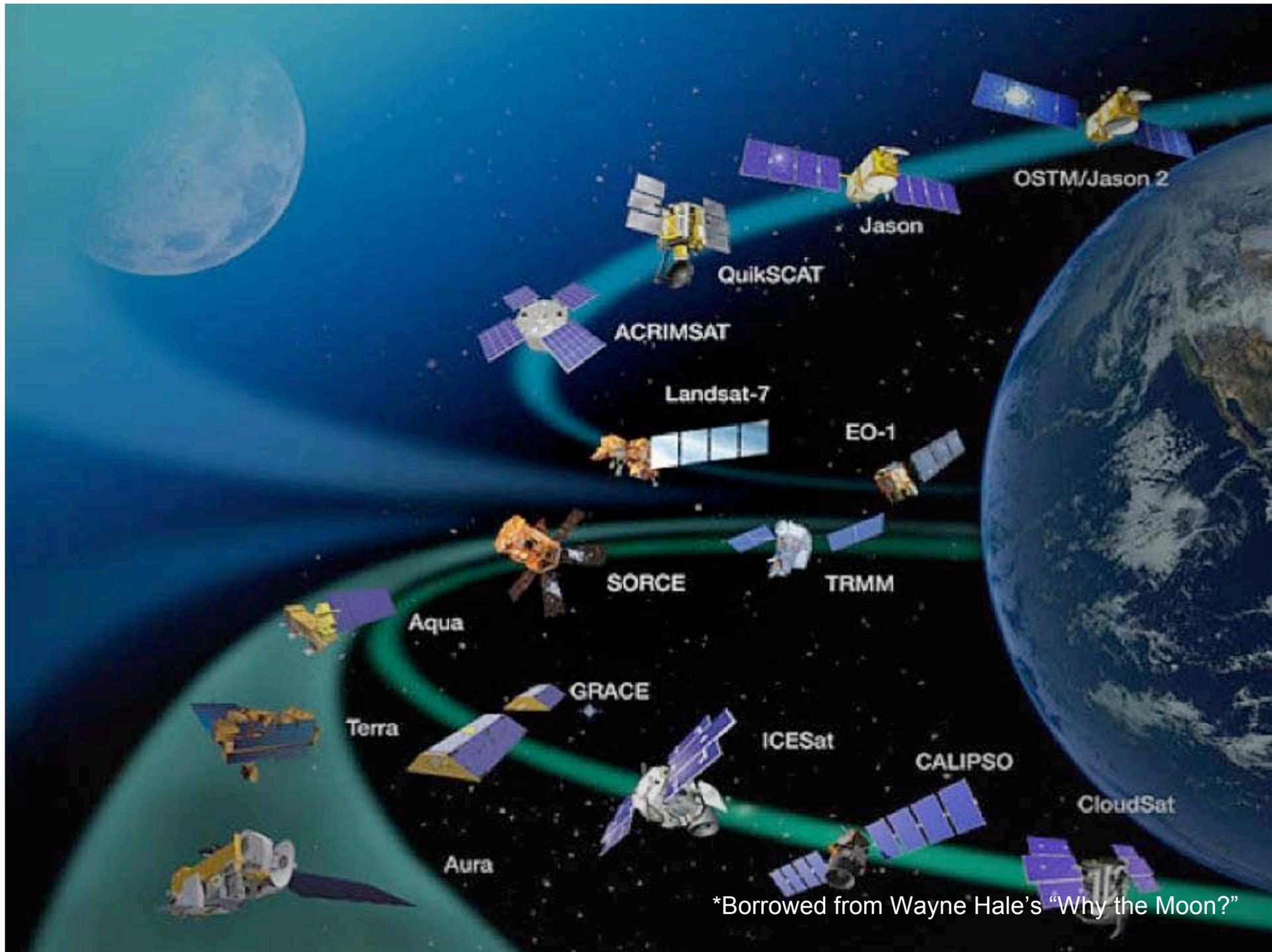
Latest size: 8.5 million square miles

Record size (*pictured here*): 10.03 million square miles

*Borrowed from Wayne Hale's "Why the Moon?"

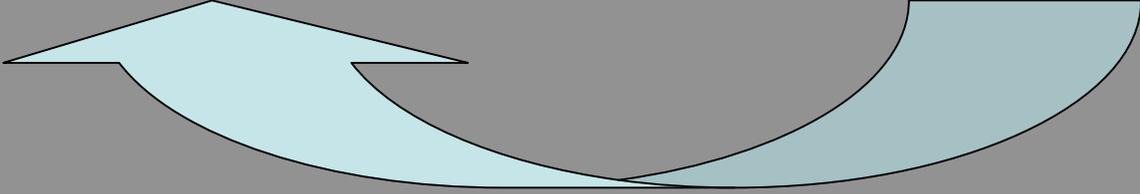
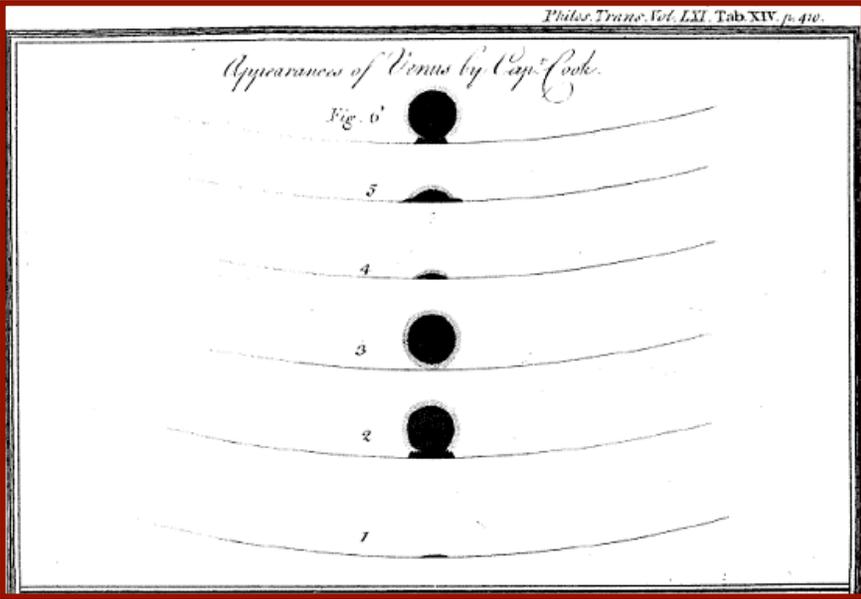
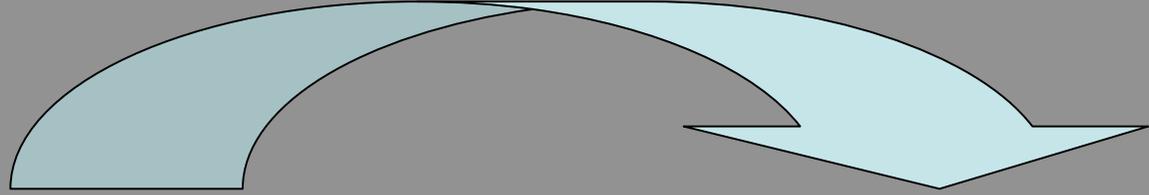
Which prompted this...

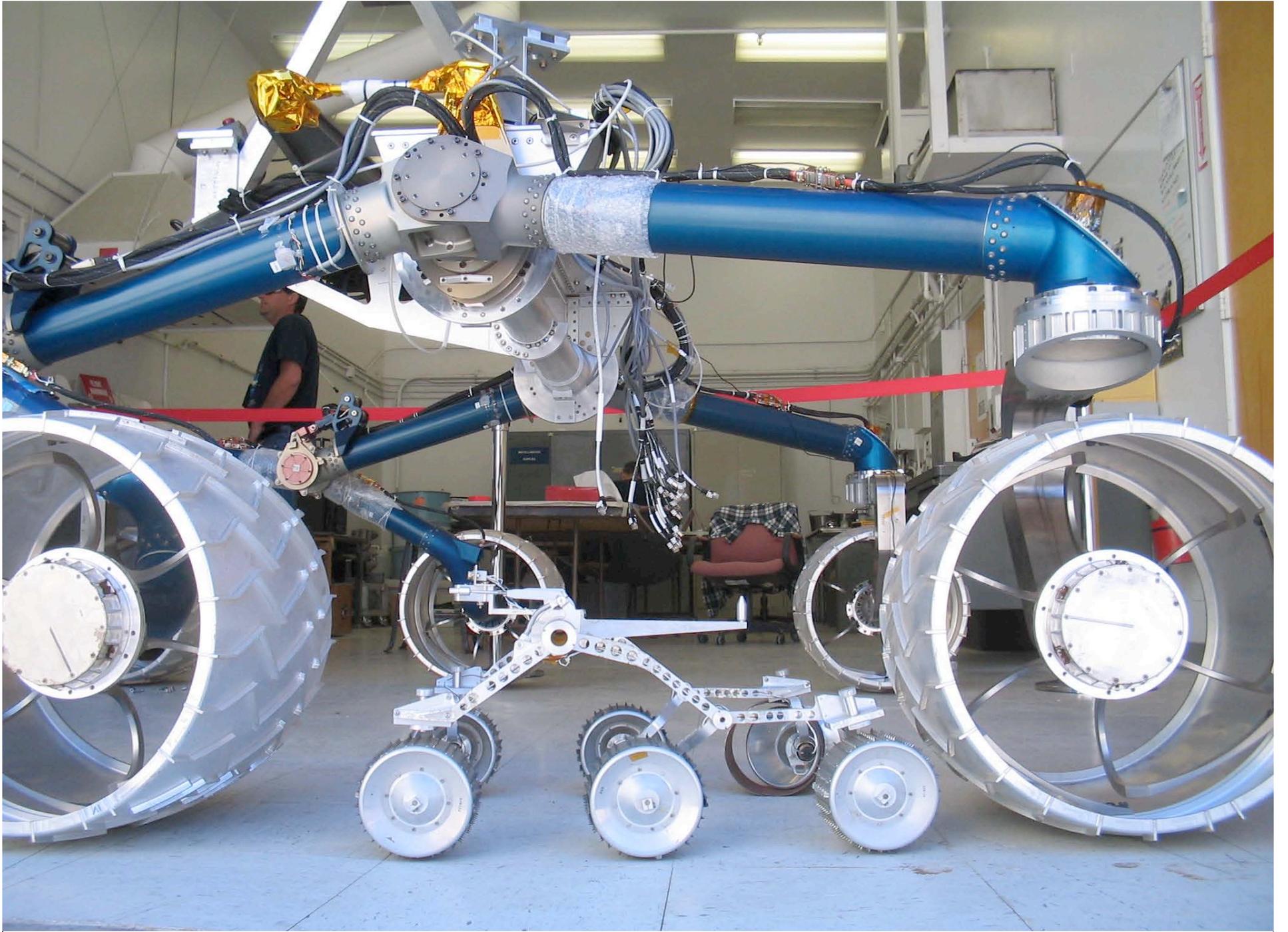
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Hubble Servicing Mission – The Partnership In Work



Wide Field Camera 3



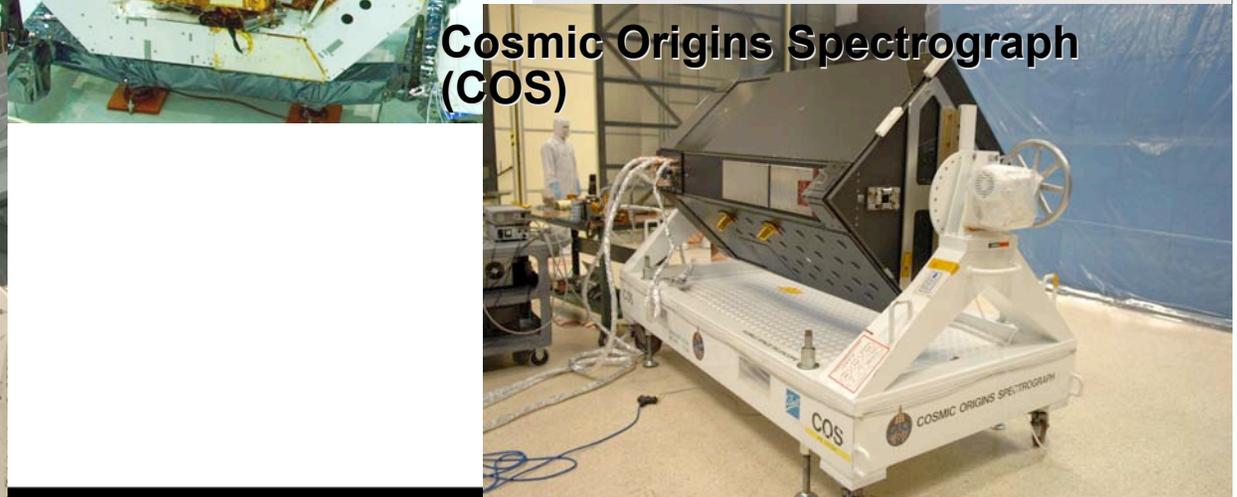
ORU Carrier



Super Lightweight Interchangeable Carrier



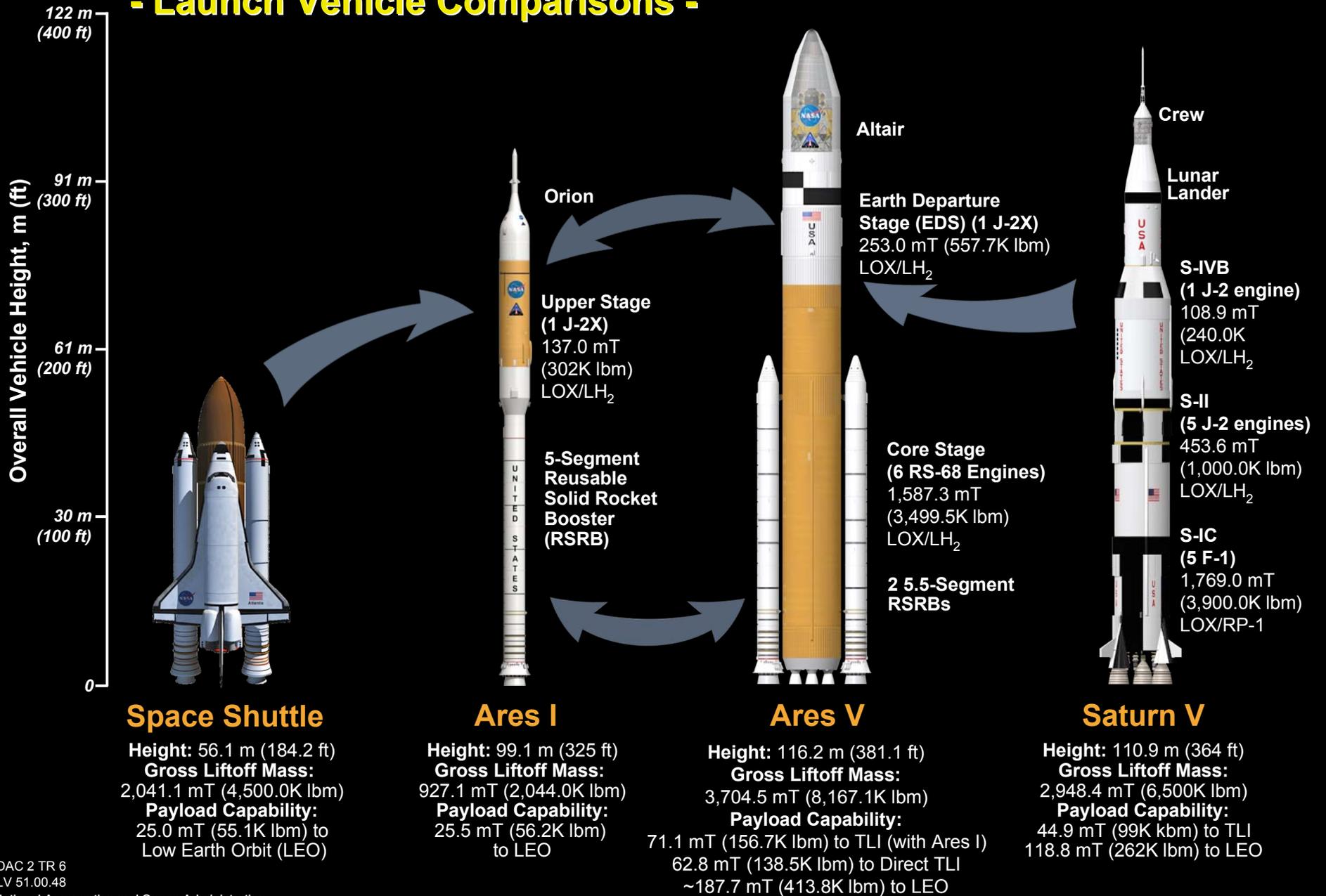
Fine Guidance Sensor (FGS)

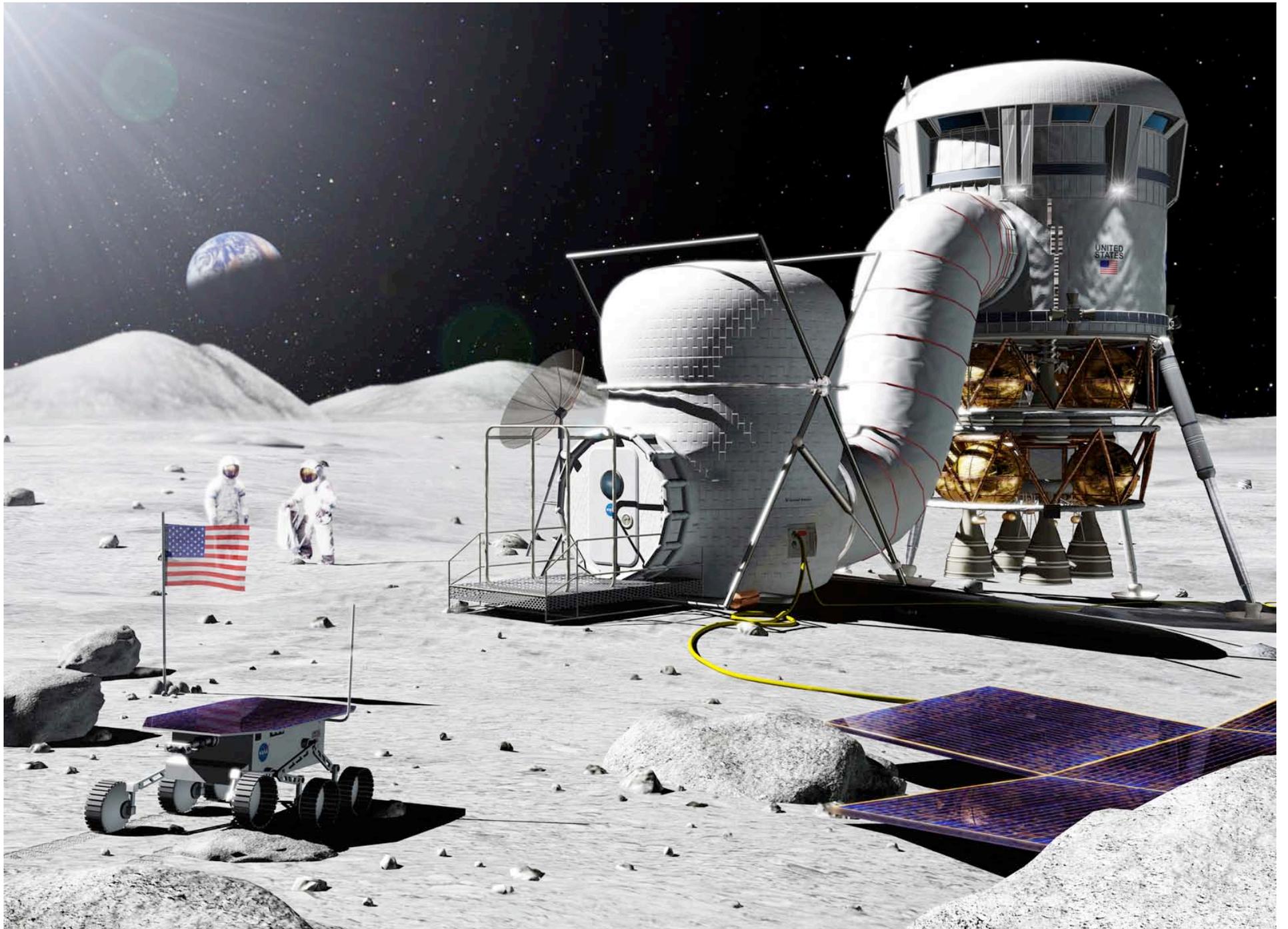


Cosmic Origins Spectrograph (COS)

Building on a Foundation of Proven Technologies

- Launch Vehicle Comparisons -







New Vistas, New Perspectives . . .



You are here

